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| EXAMINER | |
|---|---|
| LEUNG, JENNIFER A | |
| **ART UNIT** | **PAPER NUMBER** |
| 1764 | |

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/964,386 | ERGUN ET AL. | |
| | Examiner | Art Unit | |
| | Jennifer A. Leung | 1764 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,3-32 and 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-32,35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's amendment submitted on February 4, 2004 has been received and carefully considered. The changes made to the specification are acceptable. Claims 2, 33 and 34 are cancelled. Claims 1, 3-32 and 35 remain active.

### *Priority*

2. On page 1, under CROSS-REFERENCE TO RELATED APPLICATIONS and before the phrase "which is a National Stage..." in line 3, the application should be updated as follows:

-- The present application is a divisional application of U.S. Application No. 09/530,943, filed May 10, 2000, now U.S. Patent No. 6,440,057, --.

### *Response to Arguments*

3. Applicant's arguments with respect to the rejection of claims 1, 6, 8, 11, 25, 26, 30, 31 and 33-35 under 35 U.S.C. 102(b) as being anticipated by Bam et al. (US 5,424,467) have been fully considered. In view of the newly added limitations to claim 1, which now incorporates the subject matter of originally filed claims 2, 33 and 34, applicants have overcome said rejection and therefore, said rejection has been withdrawn.

4. Applicant's arguments with respect to the rejection of claims 1, 3-32 and 35 under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012), either alone or in combination with secondary references, have been fully considered but they are not persuasive.

Beginning on page 13 (first paragraph), Applicants assert (with emphasis added),

> "*KOKUBO does not disclose a reaction section comprising a static mixer.* The reaction section of KOKUBO is only taught to comprise a dynamic mixer. Specifically, KOKUBO teaches a multistage reaction tank divided into at least two chambers, each having a stirring devise comprising stirrer blades. See e.g., KOKUBO at column 4, lines

> 7-18, and Figures 3 and 4. It would appear that this special reaction device is an essential feature of the KOKUBO invention. See, e.g., KOKUBO at column 3, lines 50-53. Thus, KOKUBO does not teach or suggest an apparatus in which the reaction section comprises a static mixer. Indeed, it would appear that KOKUBO teaches away..."

The Examiner respectfully disagrees. The definition of a "static mixer" to one of ordinary skill in the art is a device in which fluids are mixed by means of flow past a stationary or fixed mixing element. Thus, as illustrated in Figures 3 and 4 and cited in column 4, lines 25-45, Kokubo et al. discloses a reactor comprising a static mixer, as reaction section ① comprises a stationary or fixed mixing element in the form of a static partition panel **1** having opening **4**, which inherently provides additional mixing of the fluids upon accelerated flow of the fluids through the restricted opening. The same comments apply with respect to the arguments made against the rejections of claim 12 (beginning on page 15, second paragraph), claims 13 and 24 (beginning on page 15, fourth paragraph), claims 14-23 (beginning on page 15, last paragraph) and claims 25-30 (beginning on page 16, third paragraph) over Kobubo et al. in view of the secondary references.

Beginning on page 13 (second paragraph), Applicants assert (with emphasis added),

> "... *KOKUBO does not teach or suggest a high pressure pump* for introducing the fats and the alkaline solution to the reaction section. KOKUBO does not teach or suggest such a high pressure pump. In this regard, it is noted that *Applicants have identified only two places* where KOKUBO discusses introduction of liquid into the reaction column. At column 4, lines 29-31, it is stated that the oil or fat, acid and alcohol are "fed" through the top of the reaction column, where they "flow downwards." At column 8, lines 25-28, it is stated that flow rate through the aperture (apparently referring to the reaction column inlet) is controlled to avoid flow backward. *Neither of these teachings appears consistent with use of a high pressure pump*..."

The Examiner respectfully disagrees. As stated in the rejections following, column 8, lines 32-49 of Kokubo et al. (with emphasis added) recites,

"Coconut oil stored in tank ② was guided at *a given rate* to an inlet of the reaction column *by means of a pump*."

"1.79% solution of sulfuric acid in methanol was sent from tank ③ to an inlet of the reaction column *by means of a quantitative pump*."

As further stated in the rejection, the limitation of "high-pressure" provides no additional structural limitation to the disclosed pumping means, since the operational pressure of the pump is not an element of the apparatus but a process limitation, which holds no patentable weight in apparatus claims. In any event, the disclosed capability of the pumping means to operate at "a given rate" would suggest to one having ordinary skill in the art at the time the invention was made that the pumping means is inherently capable of operating at a "high pressure" by merely selecting an appropriately high reactant feed rate. Also, it is noted that in context, the "aperture" in which Kokubo et al. refers is not "the reaction column inlet" as suggested by Applicants but, instead, the plurality of openings within partition panels **1**, equivalent to the openings **4** as illustrated in Figures 3 and 4. The same comments apply with respect to the arguments made against the rejections of claim 12 (beginning on page 15, second paragraph), claims 13 and 24 (beginning on page 15, fourth paragraph), claims 14-23 (beginning on page 15, last paragraph) and claims 25-30 (beginning on page 16, third paragraph) over Kobubo et al. in view of the secondary references.

Beginning on page 14 (third paragraph), Applicants assert (with emphasis added),

"... this rejection does not establish a *prima facie* case of obviousness at least because *AKE is directed toward a system for mixing a polymer into city water, thus does not comprise analogous art.* The person of ordinary skill in the art of equipment for producing fatty acid methyl ester simply would not look to art directed toward treatment of city water for design of a fatty acid methyl ester production apparatus. At least for this reason, there is no motivation to combine KOKUBO and AKE."

In response to applicant's argument of nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the particular problem in which both Applicant and Kokubo et al. is concerned relates to efficient, turbulent and controlled mixing of oil, fats and alcohol (inherently forming an emulsion of the reactants), in order that the "reaction velocity" may be increased (Kokubo et al., column 3, lines 40-45 and column 4, lines 35-45) and the "chemical balance state [may be] reached faster" (Applicants' specification, page 3, lines 17-23) without the use of large mixing facilities and/or the high operating costs associated with the prior art. Similarly, the particular problem in which Ake et al. is concerned relates to efficient, turbulent and controlled mixing of a liquid and a polymer solution (inherently forming an emulsion of the reactants) without the use of large mixing tanks, slow mixers and high operating costs of the prior art (column 1, lines 35-64). Because Applicant, Kokubo et al., and Ake et al. are each concerned with the particular problem of providing efficient, turbulent and controlled mixing of reactants while limiting mixer size and/or operating costs, the Examiner maintains that the Ake et al. reference represents analogous art despite differences in the intended use of the mixer, and therefore one having ordinary skill in the art at the time the invention was made would have had proper motivation for combining the references of Kokubo et al. and Ake et al. Additionally, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3, 5-11, 31, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012).

Regarding claim 1, Kokubo et al. (FIG. 3; column 8, lines 16-63) disclose an apparatus comprising:

- at least one container for fats (tank ②; column 5, lines 26-33);
- a tank for catalyst solution (tank ③; column 5, lines 7-10);
- a tank for alcohol (tank ④/⑤; column 5, lines 3-6);
- a mixing vessel for compounding the catalyst solution and alcohol (i.e., inherent of the apparatus, as defined by the conduit which feeds the combined streams of alcohol from tanks ④/⑤ and catalyst solution from tank ③ to the top of reaction column ①);
- a reaction section (reaction column ①; FIG. 3, 4A-C) which comprises a static mixer

(i.e., the column comprises static partition panels **1** having openings **4**; column 4, lines 29-45) connected to the at least one container ② and the mixing vessel through a pump for introducing the fats and the catalyst solution to the reaction section ① (column 8, lines 32-49; FIG. 3; Note, the limitation of "high-pressure" provides no further structural limitation to the disclosed pump means, since the operational pressure of the pump is not an element of the apparatus); and

- a separation unit downstream from the reaction section ① (i.e., as shown in FIG. 3, the SEPARATION TANK(s)).

Although Kokubo et al. discloses the tank for catalyst solution ③ comprises an acid solution, instead of the instantly recited alkaline solution, the disclosed tank is structurally capable of holding a different catalyst solution, and it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute an alkaline solution for the acidic solution in the apparatus of Kokubo et al., on the basis of suitability for the intended use, since the use of alkaline solutions for catalyzing esterification reactions is well known in the art. (see Kokubo et al.; column 1, line 56 to column 2, line 17).

Regarding claims 3 and 5, Kokubo et al. (FIG. 3, 4A-C; column 4, lines 7-62) discloses the static mixer of reaction section ① comprises a pipe (i.e., a column) having a baffle (i.e., baffle boards; column 4, lines 48-50), a propeller (i.e., stirrer **3** with blades **3'**) and a resistor (partition plates with openings **4**).

Regarding claim 6, the reaction section ① Kokubo et al. inherently comprises a dynamic emulsifier, since the propeller (i.e., stirrer **3** with blades **3'**) rotationally agitates, and thus provides motion, to the liquid within the reaction section, the propeller being driven by motor **2**.

Regarding claim 7, reaction section ① of Kokubo et al. (FIG. 3, 4A-C) inherently comprises a crack emulsifier, since openings **4** of partition plate **1** inherently define "cracks" for emulsifying the liquid during passage through the openings.

Regarding claim 8, the propeller (i.e., stirrer **3** with blades **3'**) of reaction section ① in the apparatus of Kokubo et al. inherently comprises a turbulator, since the propeller **3/3'** agitates and thus provides turbulence to the liquid within the reactor section.

Regarding claim 9, reaction section ① of Kokubo et al. (FIG. 3, 4A-C) inherently comprises a mixed from of a crack emulsifier and a turbulator, since openings **4** of partition plate **1** inherently define "cracks" for emulsifying the liquid during its passage through the openings, and the propeller (i.e., stirrer **3** with blades **3'**) inherently defines a "turbulator" for agitating, or adding turbulence, to the liquid within the reactor section.

Regarding claim 10, Kokubo et al. disclose the mixed form of crack emulsifier and turbulator comprises two disks (partition plates **1**; FIG. 3, 4A-C) capable of moving in relation to one another to introduce emulsion in the middle (i.e., through opening **4**) of one of the disks.

Regarding claim 11, reaction section ① of Kokubo et al. inherently comprises a cavitation emulsifier, since the bubbles caused by the agitation of propeller **3/3'** inherently cavitate, or suddenly collapse, during passage of the liquid from one chamber to the next, said chambers defined by partition panels **1** (FIG. 3, 4A-C).

Regarding claim 31, Kokubo et al. disclose an additional separation unit downstream from the first separation unit (i.e., in FIG. 3, the second downstream SEPARATION TANK).

Regarding claim 32, Kokubo et al. (FIG. 3) discloses the methanol layer separated from the methanol washing step(s) is sent to tank ④ for storage, and the methanol layer therein is

maintained at a constant temperature so as to prevent separation of oil due to temperature lowering. This methanol-oil mixture is then recycled to reaction section ① via a connecting pipe from tank ④ (column 8, lines 39-49). Kokubo et al. is silent as to whether the connecting pipe may instead be located as to recycle the methanol-oil mixture to reaction section ① via the container of fats ②. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate location (such as the claimed container of fats) for the connecting pipe in the apparatus of Kokubo et al. for the substantially identical purpose of recycling the methanol-oil mixture to the reaction section ① for further processing, because the shifting of location of parts involves on ordinary skill in the art.

Regarding claim 35, Kokubo et al. further disclose a flash reactor for evaporation surplus alcohol (i.e., separation tank ⑥; column 8, lines 52-56; FIG. 3).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Ake et al. (US 5,388,905).

Kokubo et al. is silent as to reaction section ① being filled with balls of various sizes. Ake et al. teach a static mixer (mixing/retention chamber **20**; FIG. 1) in the form of a pipe filled with balls (sphere-shaped objects **50**) of various sizes (column 4, lines 21-53). It would have been obvious for one of ordinary skill in the art at the time the invention was made to fill the reaction section ① in the apparatus of Kokubo et al. with balls of various sizes, because the balls provide a highly turbulent mixing of the liquid mixture, and furthermore, the variation in size enables the degree of turbulence to be varied along the flow profile, as taught by Ake et al.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Murry (US 3,614,069).

Kokubo et al. is silent as to reaction section ① comprising an ultrasound device. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to substitute a reaction section comprising an ultrasound device for the reaction section ① in the apparatus of Kokubo et al., because the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and furthermore, the use of ultrasound devices for agitating or emulsifying liquid mixtures is well known in the art, as evidenced by Murry. In particular, Murry teaches an apparatus comprising an ultrasound device (i.e., ultrasound transducer **14** with ultrasonic generator **17**; FIG. 1) for obtaining a state of cavitation, emulsification, and mixing wherein materials are subjected to a band of ultrasonic frequencies.

8. Claims 13 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Pool et al. (US 2,543,055).

Kokubo disclose oil and glycerol generated by reaction section ① are separated downstream in a separation unit comprising two stages of methanol extraction or washing (column 8, lines 57-63; two stages of combination MIXING TANK/ SEPARATION TANK; see FIG. 3). However, Kokubo is silent as to the separation unit comprising a filtration unit. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a filtration unit for the two stages of methanol extraction or washing in the apparatus of Kokubo et al., on the basis of suitability for the intended use, since the substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. *Ex parte Novak* 16 USPQ 2d 2041 (BPAI 1989); *In*

*re Mostovych* 144 USPQ 38 (CCPA 1964); *In re Leshin* 125 USPQ 416 (CCPA 1960); *Graver Tank and Manufacturing Co. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950). Also, the separation of oil from glycerol according to filtration is well known in the art, as evidenced by Pool et al. In particular, Pool et al. teaches the crystallization and separation of fatty acids and their derivatives by filtration. Crystallization and subsequent filtration provides a solvent-less means for purifying the reaction mixture, thereby avoiding the necessity of heating the separated portions to dry and remove solvent, as taught by Pool et al. (column 3, lines 12-62). The filtration unit inherently comprises a multiphase filter, as it is used for the separation of a solid, crystallized phase from a liquid phase.

9. Claims 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Pool et al. (US 2,543,055), as applied to claim 13 above, and further in view of Muraldihara et al. (US 5,482,633).

Regarding claims 14, the collective teachings of Kokubo and Pool are silent as to the recited structural elements comprising the filtration unit. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate filter means (such as the membrane instantly claimed) for the filtration unit in the modified apparatus of Kokubo et al., because substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958). In particular, an appropriate filter means is illustrated by Muraldihara, who teaches a unit for separating glycerides from oils, comprising a surface filter as defined by a membrane filtration system having a membrane module **210** (FIG. 2; column 5, lines 62-16).

Regarding claim 15, 17-20 and 23, Muraldihara et al. teach membrane module **210** comprises a filter which may be made from a porous carrier and appropriate coatings, including the materials of aluminum, silicon and water, zirconia, silica, titania, carbon and glass, said filter acting as a ceramic membrane. Other appropriate materials include sintered metal oxides and hydroxides, including sintered alumina, sintered ceramics, and microporous glass. (column 3, lines 26-38; column 4, lines 7-20). Inherently, the membrane would exhibit at least one of lipophilic, hydrophilic and amphoteric properties, depending on the selected materials, and inherently, the membrane comprises a molecular sieve membrane or a molecular sieve filter, as evidenced by the filter structure having a molecular pore size.

Regarding claim 16, although Muraldihara et al. is silent as to the specific configuration of the porous carrier, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select an appropriate configuration (such as a pipe configuration) for the surface filter in the modified apparatus of Kokubo et al., on the basis of suitability for the intended use, since pipe shaped membranes are well known in the art, and furthermore, it has been held that changes in shape involves only ordinary skill in the art.

Regarding claims 21 and 22, Muraldihara et al. teaches the membrane module **210** may comprise a filter having a pore size from about 0.1 to about 10 microns, and preferably from about 0.1 to about 0.5 microns (column 4, lines 7-20).

10. Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokubo et al. (US 4,275,012) in view of Brockmann et al. (US 4,655,879).

Kokubo et al. discloses a separation unit downstream from reaction section ① (i.e., SEPARATION TANK(s); Fig. 3) but is silent as to whether the separation unit may comprise a

distillation unit comprising at least one evaporator and at least one condenser, or whether a distillation unit comprising at least one evaporator and at least one condenser may be provided downstream or upstream from the separation unit. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute or provide a distillation unit to the apparatus of Kokubo et al. since the use of distillation for the separation and purification of effluent streams is well known in the art, as evidenced by Brockmann et al. In particular, Brockmann et al. (FIG. 1; column 4, line 47 to column 6, line 26) teach a separation unit for the purification of glycerol containing streams from a transesterification process, for example, wherein the unit comprises a distillation unit (i.e., packed column **11**) comprising at least one evaporator (i.e., thin film evaporator **6**, substantially a rotational flow evaporator, as evidenced by the stirring means; falling film evaporator **19**, substantially a down-flow evaporator) and at least one condenser (i.e., condensers **13**, **14**, **15**). Substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. *Ex parte Novak* 16 USPQ 2d 2041 (BPAI 1989); *In re Mostovych* 144 USPQ 38 (CCPA 1964); *In re Leshin* 125 USPQ 416 (CCPA 1960); *Graver Tank and Manufacturing Co. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
April 6, 2004

Hien Tran

**HIEN TRAN**
**PRIMARY EXAMINER**